

ABSTRACT

A process for the production of hydrocarbons and ammonia, and more particularly a process for optimizing the production of hydrocarbons and ammonia using a combined hydrocarbon synthesis plant and ammonia synthesis plant. Synthesis gas exiting a reforming section of the hydrocarbon synthesis process is sent to a hydrogen extraction unit, where it is divided into a hydrogen-rich stream and a hydrogen-poor stream. The hydrogen-rich stream is then fed into an ammonia synthesis process. The hydrogen-poor stream may be returned to the hydrocarbon synthesis process or may be used as a fuel gas. The process reduces emission of CO₂ into the atmosphere, and requires only one reforming section and one air separation unit for both processes. Removal of hydrogen from the hydrocarbon synthesis process before the synthesis gas enters a Fischer-Tropsch reactor also lowers the H₂/CO ratio of the synthesis gas, therefore resulting in better hydrocarbon selectivity.